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## ORIGINAL ARTICLES

### CONSERVATION OF EYE-SIGHT

BY

DR. HARRY C. MESSINGER

PROVIDENCE, R. I.

Scientific medicine is progressive, its field is vast; even within the past few years, not only men of research, but practitioners have new conceptions of pathological processes and new ideas of treatment. Compare your present understanding and methods of treatment of diabetes, heart disorders and goiter with the knowledge and means of twenty years ago. The practitioner of today, with the help of specialists, quickly available, can deal intelligently with conditions which twenty years ago were to a great degree beyond his control.

In ophthalmology, progress has not in the last two decades been striking, but in the efficient care of the eyes and conservation of sight there has been and there will be progress. New ideas in medicine, such as focal infection, localization of brain-tumors, the study and care of inflammatory diseases of the nasal accessory sinuses, new drugs, the wider use of the electric ophthalmoscope, have broadened the scope and application of ophthalmologic knowledge. What once was known only to the trained specialist is now more generally understood; ophthalmic efficiency has increased.

The importance of conservation of vision has appealed to thinking men and women, both in and out of our profession; as for instance, The National Committee for the Prevention of Blindness, which a year ago had 10,000 members and now has 16,000, and the Eye Conservation Council of America, from whom I procured the slides I shall show you in a few minutes. The object of these organizations is to disseminate knowledge of methods of sight conservation and stimulate inter-

est in the subject. Both organizations realize that the objective is best attained by education, aided in some instances by legislation.

In Providence, for nearly twenty years, school-children have been examined for defective vision, parents advised to take them to oculists for correction of defects, and in cases where they were too poor or indifferent to follow this advice, examination by medical men has been provided. This has been a service of value, not only to individuals but to the city. I know of boys who have left school at the earliest possible age with the idea that they were poor scholars, mentally inferior to others, when the truth was they did not do well in school because what was written on the blackboard was like Greek to them, or because continued reading gave them headache or restlessness from eye-strain. This service is much more efficient in Providence than in the country at large (thanks to Dr. Chapin), although something like thirty-eight states have legislation on the matter.

About 16% of all industrial accidents are eye accidents, and their prevention is a very important part of the conservation of eye-sight. I once knew a man named Patrick Burns, who worked in the grinding room at the Nicholson File Company. Each night before supper his wife instilled cocaine and with the point of a pen-knife went over both eyes digging out any emery she could find. His corneae were well spotted, the recurrence of actively inflamed ulcers was not enough to break up that practice. The cocaine felt "good" after a hard day at the wheel. Even the Harrison Act has helped conserve sight.

About 16% of the total blindness in the United States is due to accident. Many of these accidents are preventable by the use of goggles, better illumination of factories, etc. Proper illumination is very important also in the prevention of eye-strain. Some of our modern lights are very powerful; such lights produce glare on polished surfaces; the light should be properly diffused. Daylight has no perfect substitute.

The general practitioner has done much in the prevention of blindness; the use of the Crede

\*Read before the Rhode Island Medical Society, Dec. 2, 1926.

method of instilling silver nitrate at birth is general, not only because of law, but from the example in teaching of doctors everywhere. Mothers of cross-eyed children are no longer told to wait until they are older, but are referred to the oculist. The Public Health Service of our country is fighting trachoma, which is still more or less prevalent.

With regard to hospital care of eye patients: we now have more hospitals, better equipped than formerly, and our out patient departments also, have much better equipment. BUT we have in this state very few beds reserved for eye cases. Our clinics could be much better. There is this difference between eye cases and most others. The most important eye cases may be walking about. One may step into the out patient department or into the office of any of us. In my opinion the Senior Members of the Visiting Staff should be present at our patient clinics, should see most of the new cases and any important case: this would assure the attention of an experienced man and also, should the case be referred to the House, the surgeon will know it, will have personal touch with it, and know why it comes to the House. The out-patient man, even the new externe, should visit the House with the Senior, he should have the advantage of following the case to its in-treatment, laboratory findings, etc. At present our out-patient clinics are small, or, if larger, are undermanned.

In the hospital, eye patients should be in a separate ward or pavilion and have nurses whose only duty is to care for them. The eye patient is apt to be quiet, uncomplaining, yet inattention to details of treatment may result in disaster. Disaster or failure to him is loss of sight, yet between a pneumonia case and a case of glaucoma, the pneumonia man, to the nurse caring for both, is evidently sick. He may die, perhaps in an hour; the eye patient is all right, he looks healthy, perhaps cranky about the pain in his head. We are not afraid he'll die, but we do not care to have him spend his declining years selling shoelaces in front of Grace Church, with an "I am Blind" sign hanging about his neck. A small operating room reserved for eye cases is also important. Infection after an eye operation is a serious matter. Eye wounds cannot be protected, as are abdominal wounds for instance, from secondary infection, or

the field so thoroughly sterilized before operation; we cannot afford the slightest preventable risk of infection at the time of operation. Repair will take place, but possibly at the sacrifice of vision—failure again. I prophesy for our State in the future an efficient public clinic and segregated eye pavillion, probably not a separate institution, but a part of one of our hospitals.

Every branch of medicine has its contacts with ophthalmology. The eye is an optical instrument, often imperfect structurally, and made, not of glass and wood, but of living tissues, delicately though rather ruggedly constructed. Advance in this specialty at present means the more practical use of what we already know.

Conservation of vision is important for humanitarian and economic reasons. Give the ophthalmologist a chance at any child who is cross-eyed, scowls, keeps rubbing his eyes, who does not progress as he should in school. Give him and the child improved hospital facilities, and above all, educate the public that the ever increasing demands of modern life on the sight-organ can only be met by widespread use of all conservation methods.

### AUTONEPHRECTOMY\*

BY

VINCENT J. ODDO, M.D.

PROVIDENCE, R. I.

#### *Value of Pyclography and Report of Five Cases From the Urological Department St. Joseph's Hospital*

Autonephrectomy has been described as a primary enclosed tuberculous involvement of all or a portion of the kidney, with or without a superimposed mixed infection, and with a ureter and pelvis either closed or patent.

In 1915, Caulk reviewed the literature very thoroughly and reported seven cases. In 1921, he reported sixteen other similar cases. He showed that spontaneous healing never takes place in a tuberculous kidney.

The most comprehensive study however, was made by Player and Redewill in 1926. They

\*Read before the Rhode Island Medical Society March 3, 1927.



divided the various pathologic lesions found in autonephrectomy into the following classification. They are listed in the order of frequency:

- (1) Ulcero-cavernous tuberculosis,
- (2) Tubercular pyonephrosis,
- (3) Tubercular atrophic sclerosis,
- (4) Tubercular hydronephrosis.

These latter authors state that autonephrectomy is always a primary tubercular infection, and that a case has never been reported in which pyogenic organisms were the sole causative factors in the walling off of the kidney with the pelvis and the ureter for any period of time. This statement is in variance to our experience, and I will demonstrate today one case in which a tubercular process could not be found after a very careful study by our pathologist Dr. James Hamilton.

Pyelography in autonephrectomy helps us not only to visualize the transformation which has occurred in the kidney and ureter, but also, what operative procedure to adopt should nephrectomy be indicated. At the onset of a kidney infection pyelographic study is negative, but after the process has continued for a long period certain changes occur. It is possible to see for example, strictures, dilatations, kinks and calculi in the ureter, and also whether the ureter is permeable. If patient have a calculus in the ureter and nephrectomy be performed, it is necessary to remove the calculus.

The changes which take place in the kidney pelvis are those of a chronic kidney infection and are influenced by an obstruction in the ureter.

Some show contraction and obliteration of the pelvis as in one of my cases; others a pelvis filled with calculi, but the largest number present a pelvis which is dilated, deformed, with obliteration of the calices, and often showing cavitation. In anomalies of the kidney a pyelograph of the normal side aids us in locating the exact position of the diseased kidney. I shall report one such case today.

I desire to report now five cases which exemplify in my opinion forms of autonephrectomy.

**CASE (1)** Miss A. B. age 20, admitted December 5, 1921. Record No. 2263. Referred by Dr. W. R. McGuirk.

Complaint: Marked frequency, urgency, and pain in urination. History of the case brought out the fact that in childhood the parents noticed that

she voided very often, and that she had seen at irregular intervals, blood and calculi in the urine.

Physical examination: On palpation great tenderness over the bladder region. In the urine were found many red blood cells but no tubercle bacilli.

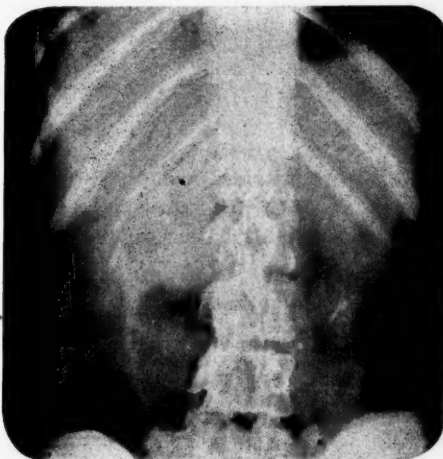


PLATE (1)

Case (1) Calculi in the left and right kidneys. Calcification of the right ureter.

The combined intravenous phthalein test showed 10% of the dye was excreted in one hour. Cystoscopy under slight general anesthesia gave these findings: the vesical sphincter was markedly dilated; many calculi were seen on the bladder floor; chronic cystitis; the right ureteral orifice was large, funnel shaped and did not show any contractions of the ureteral sphincter. The left ureteral orifice was also very large, and was surrounded by an intensely congested mucosa which in turn was covered by muco-pus. The right ureter was catheterized for a distance of three inches but no urine was obtained. The left ureter could not be catheterized. Radiographs of the urinary system before the cystoscopy showed the following: calculi in the bladder, the left kidney, the right kidney, the right ureter, and calcification of the right ureter.

Diagnosis: paralysis of the vesical sphincter, chronic cystitis, vesical calculi; calculi in and progressive destruction of the left kidney; autonephrectomy of the right kidney; calcification of the right ureter. The right kidney in this case was completely walled off and totally destroyed. The patient died two weeks later without operation.

CASE (2) Mr. O. V. Age 65; admitted February 10, 1923. Record No. 5255.

Complaint: for a period of eight weeks has had pains in both kidney regions, both abdominal and lumbar, radiating to the bladder, accompanied

Complaint: for three months marked frequency and urgency in urination and blood in the urine at each urination.

Two years ago the patient began to suffer with pains in the left kidney which radiated across the abdomen to the right side. About one year ago, the pain in the left kidney became intense, radiated to the bladder and was accompanied with symptoms of acute cystitis.

The family history is of importance in that a daughter of twenty one has tuberculosis of the lung.

Physical examination: patient is fairly well nourished but says that she has lost considerable weight in the past year.

Palpation: there is pain over the left nephritic and bladder regions. The lower pole of the left kidney is palpable.

Cystoscopy: a very acute tuberculous cystitis was present. The right ureter appeared normal and emitted clear urine. The left ureteral orifice was ulcerated, the edges being ragged and deep. It did not contract: and about every five minutes flakes of pus oozed out. There were three large ragged ulcers between and posterior to the ureters and three small similar ulcers on the right wall of the bladder. Both ureters were catheterized and collections made. The right kidney specimen was



PLATE (2)

Case (2) Showing atrophy of the left kidney pelvis.

by the appearance of bloody urine; frequency in urination. The patient has complained of a lumbar discomfort in the regions of both kidneys for many years.

Physical examination; on palpation neither kidney could be felt, but the left nephritic region was tender. The combined kidney test with phthalein given intravenously was 50% for one hour.

Cystoscopy: the bladder was normal; there was a small diverticulum behind the left ureter; both ureters were easily catheterized; the left ureteral orifice did not show contractions. Urine was obtained from the right side but none from the left. In the differential kidney test with phthalein given intravenously 45% was obtained from the right kidney but none from the left. A pyelograph of the left side showed a small contracted button shaped pelvis.

Diagnosis: diverticulum of the bladder, auto-nephrectomy of the left kidney, hypertrophy of the right kidney.

This is another case of total destruction of the left kidney with obliteration of the pelvis.

CASE (3) Mrs. L. V., age 47; admitted May 4, 1926. Record No. 752.

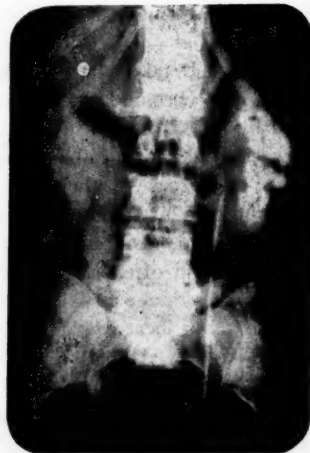


PLATE (3)

Case (3) Showing abscess cavity of the left kidney; enlarged pelvis and dilated ureter on the right side.

clear; the left showed a few cc of thick pus. An intravenous phthalein test was then given and in 15 minutes 20% appeared on the right side; none on

the left side. Tubercle bacilli were found in the pus from the left kidney. The blood examination gave 17,000 leucocytes.

Pyelography showed a large pus sac in the left kidney; a dilated ureter and distortion of the pelvis on the right side. Dr. James F. Boyd made a diagnosis of tuberculous kidneys.

A left nephrectomy was done and a tubercular abscess was present. This was a case of tuberculous pyonephrosis. Diagnosis: Autonephrectomy of the left kidney.

January 10, 1927. Patient has gained in weight, still has slight frequency in urination, and occasionally the urine is blood tinged.

CASE (4) Mr. D. I., age 36, admitted November 29, 1926. Record No. 2618.

Complaint: pain in the right anterior nephritic region and continual ache in the suprapubic area, accompanied by a diurnal and nocturnal frequency and urgency in urination. The patient's initial symptoms began about one year ago with pain in the right nephritic region, and soon there followed the above urinary symptoms.



PLATE (4)

Case (4) Showing the ureter crossing the spine to the pelvis situated at the right portion of the horseshoe kidney. The pelvis is dilated and the calices blunted.

Physical examination: the patient is thin and poorly nourished. Palpation elicited pain over the appendiceal and right kidney area and also caused a dull ache over the bladder region. The globus minor of the right epididymis was large, indurated, and painful. On rectal examination the

prostate and the right seminal vesicle were indurated. Urinalysis: albumin one plus, many leucocytes, red blood cells, and many acid fast bacilli. The combined intravenous phthalein test showed 35% in one hour.

Cystoscopy: there was a stricture of large size in the posterior urethra; the mucosa of the trigone and bladder was edematous and much congested, like a tuberculous cystitis; the right ureteral orifice appeared normal and was seen to contract and dilate. The left ureteral orifice was funnel like and did not show contractions of the sphincter; about every four minutes small flakes of pus oozed out. This orifice was surrounded by much congestion and edema, and above and behind it was an area of ulceration. The right ureter was easily catheterized, the urine was clear, and contained few leucocytes. Guinea pig inoculation with this urine did not show tuberculosis.

On the left side the catheter entered for a distance of one-half inch and then was obstructed, no urine was obtained. An intravenous phthalein test showed 10% was excreted by the right side, none by the left, in 15 minutes.

Pyelography of the right side showed two important findings: (1) a blunting of the calices; (2) the ureter crossed the spine and demonstrated the right kidney on the left side of the body to the left of the spine. From the character of the calices this kidney seemed tuberculous.

Diagnosis: tuberculous cystitis; incipient tuberculosis of the right kidney; autonephrectomy of the left kidney.

The left ureter could not be catheterized as I mentioned above, but as the right ureter crossed the spine to the left, I decided that the left ureter crossed the spine to the right. I operated, explored the right abdominal area but no kidney was found. On further exploration of the abdomen a horseshoe kidney was found situated completely on the left side of the abdomen to the left of the spine. The right portion of the horseshoe kidney was small and indurated; the left portion was large. In the examination the right lobe of the liver was found to extend below the crest of the ilium. The appendix was removed.

This case demonstrates very well a tubercular hemi-autonephrectomy of the left half with probable extension of this process to the right portion of the kidney. I did not perform a heminephrec-

tomy because I believed the prognosis would have been unfavorable.

Since the removal of the appendix the patient does not complain of pain on the right side of the abdomen.

CASE (5) Mrs. E. R., age 60; admitted April 12, 1926. Record No. 783. Referred by Dr. S. L. Beaudoin.

Complaint: pain in the left nephritic region and blood in the urine. The history of this case is interesting. One and one-half years ago the patient suffered with excruciating pain in the left



PLATE (5)

Case (5) Showing almost total disappearance of the kidney tubules; extensive formation of fibrous tissue; round cell infiltration, the glomeruli are slightly hypertrophic and the capsule thicker than normal.

kidney which radiated to the left thigh. She was operated upon by another surgeon for calculus in the kidney, but no calculus was found. Following the operation the wound became infected and drained for three months. As a result of this infection the patient developed a ventral hernia the size of a baby's head. This hernia receded on lying in the prone position and protruded in the erect posture. For one week before being admitted the patient saw blood in the urine several times. What disturbed the patient the most was the pain in the left nephritic region and ultimately the appearance of the blood in the urine. Six years ago patient had typhoid fever.

Physical examination: patient is short, fat and seems very tired. A large hernia is present over the left anterior nephritic area. The thickness of the hernial sac is very thin as the coils of the intestines can be seen and felt distinctly. Palpa-

tion through this area demonstrated a small, indurated, immovable and insensitive kidney which was fixed and firmly attached to the lumbar fascia.

The combined intravenous phthalein test was 45% Wassermann of the blood was negative.

Urinalysis: the urine was turbid, contained two plus albumin, a few leucocytes and occasional hyaline cast.

Cystoscopy: many small ulcers were present on the trigone, each surrounded by an area of hyperaemia. The rest of the bladder was normal. The right ureteral orifice contracted well and appeared normal. The left ureteral orifice was small and did not contract and dilate. The right ureter was catheterized, clear urine obtained, culture was negative. Culture of the bladder urine showed bacillus coli. The catheter entered the left ureter for a distance of one-half inch and became obstructed. No urine was obtained. In the intravenous phthalein test 12% was excreted by the right kidney in 15 minutes and none by the left.

The total leucocyte count was 9800.

Pyelography: the opaque fluid rose for about one inch in the left ureter. The ureter and pelvis on the right side were normal.

Diagnosis: autonephrectomy of the left kidney.

The kidney although small was removed with great difficulty. The adhesions were so dense about the kidney that the scissors were used very freely to separate it.

Laboratory report: by Dr. James Hamilton.

Specimen consists of a mass of tissue not unlike a kidney surrounded by fatty and inflammatory like tissue. The kidney is  $7\frac{1}{2}$  cm in length, 4 cm in width, and 3 cm in thickness. It is very firm and hemorrhagic throughout. On section the cut surface presents a pale yellowish appearance with a few scattered cysts filled with gelatinous material. The kidney tissue is uniform in consistency, and the normal kidney markings are not apparent.

Multiple sections were made for microscopic examination without any evidence being found of a tubercular nature.

This case is interesting because the pain in the left nephritic region was due to the autonephrectomized kidney, and the hematuria to ulcers on the trigone.

December 5, 1926. I was notified by the family physician that the patient had been free of pain



since the operation, and that she feels much stronger. Also that she has not passed any more blood in the urine.

A summary of the five cases is interesting:

They occurred between the ages of 20 to 65 years. Three were female and two male. The left side was involved four times, the right once. The kidneys were palpable twice cases No. (5) and (3).

One kidney case (5) showed perinephritic changes, probably because of a secondary infection. All the kidneys were small except case (3). They were all diagnosed during life except that the horseshoe kidney was overlooked in case (4).

The bladder showed evidence of tuberculosis in two cases, chronic cystitis in two, and in one case the bladder was normal.

The ureters were patent in two, and obstructed in three.

An important feature in case (3) is that in a seemingly bilateral tuberculosis of the kidneys, the patient improved both in symptoms and in physical strength, after the removal of the left kidney.

#### *Conclusions*

(1) In this series of cases autonephrectomized kidneys produced:

- (a) Pain in the kidney in 80%
- (b) Pain in the bladder in 80%
- (c) Chronic cystitis in 80%.

(2) The proper treatment is nephrectomy provided the prognosis is favorable.

### THE SURGICAL INDICATIONS OF INFLAMMATORY DISEASES OF THE GALL BLADDER

BY

AIME PAUL HEINECK, M.D.

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CHICAGO, ILLINOIS.

The morbidity and mortality of the surgical diseases of the gall-bladder and biliary ducts can be lessened by the timely and judicious employment of appropriate operative measures. Guided by our clinical experience and a study of the English, French and German literature of the subject published during the last five years, it is my wish

to briefly discuss the indications for and the usefulness of operative treatment of inflammations of this organ. The rapid, permanent and complete cure of inflammatory diseases of the gall-bladder and biliary passages can only be secured by the aid of surgery. Medical treatment is palliative and valuable in the pre- and post-operative management of these affections. To furnish the occasional operator with safe indications for the performance of either of these two operations, cholecystostomy and cholecystectomy, is the sole object of this paper. Formerly, there was a tendency to extreme conservatism; surgeons were hesitant, and only badly diseased gall-bladders were removed. Nowadays, the reverse obtains, and, of the two operations, cholecystectomy is the more popular, the more frequently performed, and is said to be more often followed by complete and permanent recovery, and to do, when skilfully performed, the most good to the greatest number.

In inflammations of the gall-bladder, calculous or non-calculous, complicated or uncomplicated by disease of the neighboring organs, cholecystostomy and cholecystectomy have each their respective sphere of usefulness. No surgeon of experience employs either exclusively. Irrespective of the type of operation performed, a certain percentage of cases present post-operative symptoms. Some clinicians teach that a diseased gall-bladder is a potential menace, and should not be left in the abdominal cavity any more than a diseased appendix; others maintain that the gall-bladder should be left whenever possible, claiming that its ablation is a mutilation, and that it is a safe and sure guide to the common duct, should a subsequent operation on the bile tracts be necessary. After removal of the gall-bladder, exploration of the bile-ducts is attended with great difficulties.

Drainage of the gall-bladder is a safer and easier procedure in the hands of the average surgeon and in the average case. It is easy of execution, requires little operative skill, and, in desperate cases, is an emergency operation giving immediate relief, and is frequently life-saving. Many patients are so improved by an emergency or preliminary cholecystostomy that they, when their condition is stabilized, willingly and safely submit to further restorative operating or to the removal of their diseased gall-bladder. In fulminating cases, carry by drainage the acute gall-bladder to

the subacute or chronic stage, and remove it later if it becomes necessary.

Cholecystectomy removes completely from the body a focus of infection, and is usually attended by an earlier, more complete and permanent disappearance of symptoms. The advocates of cholecystectomy say that its end-results are as superior to cholecystostomy as those of nephrectomy for pus-riddled kidneys are better than those of nephrotomy. They further maintain that cholecystostomy is an incomplete operation because the retained gall-bladder is a potential source of future trouble, and is an important factor in stone production and in the persistence and recurrence of symptoms. The secreting glands and crypts in the lining membrane of the gall-bladder may be retention pockets of sediment, pus and bacteria.

An intelligent and profitable discussion of the subject calls for a knowledge of the important accepted and established facts known concerning the anatomy and physiology of the gall-bladder, and a brief review of the etiology and pathology of its inflammatory diseases.

The gall-bladder is not a useless, not a vestigial organ. Its routine removal is to be condemned. When diseased, if its restoration to approximately normal function and normal structure be probable, it should not be removed. If the gall-bladder is irreparably diseased, its removal is necessary. Formation anew of the gall-bladder never takes place.

\* \* \*

The relations (anatomical and physiological) existing between the gall-bladder and bile-ducts and the contiguous organs (first part of the duodenum, pyloric end of the stomach, liver, head of the pancreas, etc.) are intimate and important. Functional impairment and anatomical deviations of any or of all the constituent parts of the biliary system determine more or less biliary insufficiency and digestive disturbances. These lower vitality, entail invalidism, and predispose to, when they do not result from, calculous, inflammatory, neoplastic and other degenerative processes in the gall-bladder and related organs.

Anatomical and physiological integrity of the gall-bladder and bile-ducts (excretory and secretory parts of the hepatic system) is essential to the perfect physical state of the individual. Normal hepatic functions presupposed, among other con-

ditions, adequacy of the lumen of the cystic, hepatic and common ducts, and normalcy of the mucous membrane and musculature of the gall-bladder. The organ must be free from adhesions, and its motility and contractility unimpaired.

About the gall-bladder, extending beneath the serosa, and especially between the liver and gall-bladder, there is a layer of cellular tissue in which are situated lymphatic capillaries communicating with the lymphatics of the liver. In severe infections of the gall-bladder, this cellular tissue is infiltrated and oedematous. It is continuous with that covering the pancreas.

Connective tissue holds the gall-bladder in intimate contact with the under surface of the right lobe of the liver. The organ is further maintained in position by peritoneum covering fundus and under and lateral surfaces and continuous with the hepatic serosa.

The gall-bladder and bile-ducts are abundantly supplied with lymphatic vessels by which infection may be conveyed to and from the liver, to the head of the pancreas, and to other neighboring or remote organs. Many of these lymphatics pass through a lymphatic gland situated at or near the neck of the gall-bladder. Some of the efferent lymphatic vessels empty in glands near the head of the pancreas, others in glands near the hepatic artery.

The cystic duct at its junction with the gall-bladder forms a sharp letter-S kink. In certain pathological states, so efficient is the valve-like obstruction formed by this kink that either the gall-bladder or the common duct can be overdistended to bursting without affecting the pressure in the other. The mucous membrane of the cystic duct is continuous with that of the gall-bladder; it differs from it by being thrown into numerous valve-like folds (leaflets), the valves of Hester.

Anomalies in the caliber, number, length, mode of union, distribution and anatomical relations of the regional blood-vessels and bile-ducts are not uncommon. To disregard them is to invite operative accidents.

\* \* \*

As to the normal functional value and functions of this organ, there is a great difference of opinion. The bile undergoes in the gall-bladder modifications, physical and chemical, enabling it to better participate in the digestive processes. Nor-

mally the gall-bladder contains about 30 Cc. of bile; by virtue of the elasticity of its walls, it is capable of enlarging to a much greater capacity. It is an overflow chamber, a tension bulb, a safety-valve, as it were, protecting the liver cells from injury incident to excessive back pressure. Some clinicians claim that the most important function of this organ is to relieve pressure within the biliary ductal system.

The flow of bile into the duodenum is regulated by many factors, the rhythmic contractions of the gall-bladder, the respiratory movements, the milking action of the duodenal peristaltic waves, the passage of the acid chyme through the pyloric opening and active digestion. The gall-bladder and ducts are squeezed between the liver and the intestines by the contractions of the diaphragm and of the abdominal respiratory muscles.

Under normal fasting conditions, the sphincter of Oddi, when normal in tone, controls the bile pressure in the ducts. With the passage of food from the stomach into the duodenum, the sphincter at the outlet of the common bile-duct relaxes, the gall-bladder contracts, and the bile escapes into the intestine. As the sphincter of Oddi contracts, the gall-bladder relaxes reflexly and vice-versa (theory of contrary innervation).

The intra-duct bile pressure is dependent on the force of bile secretion and the resistance offered by the sphincter muscles at the ampulla of Vater. The liver secretes bile at about 300 mm. pressure of water, and the maximal contracting force of the gall-bladder, when under stimulation by electricity, is only 313 mm. Thus, it is seen that the maximal force of contraction exerted by the gall-bladder on its contents does not exceed materially the maximal normal intra-hepatic bile pressure.

The gall-bladder, owing to the poor development of its musculature, has low contractile or expulsive power; it cannot fully empty itself. Its smooth musculature has just enough tonus to prevent overdistension of the organ, and cannot and does not exert any particular pulsative pressure upon its contents. Hypertrophy of the gall-bladder wall is not caused by and does not follow obstruction (continuous or intermittent, partial or complete) of the cystic or common duct. This is in sharp contrast to what occurs under analogous conditions in other smooth-muscle hollow viscera.

During fasting, the gall-bladder fills with bile, adds mucus to it, concentrates it and otherwise modifies it. Gall-bladder bile is a thick, syrupy, viscid fluid, having about eight times the consistency of common-duct bile. This concentration of bile is brought about largely through water abstraction by the lymphatic vessels.

The gall-bladder secretes mucus. "The mucus it produces reduces the chances of pancreatic and other complications," Mayo. The bile from the hepatic duct being free of mucus can cause a more virulent pancreatitis than gall-bladder bile, which under normal conditions always contains mucus.

Permanent dilatation of the bile-ducts and larger biliary radicles follows, as a rule, the permanent loss of gall-bladder function through atrophy, disease, such as long-continued chronic cholecystitis, distension of the gall-bladder with calculi, complete occlusion of cystic duct, etc., or removal of the gall-bladder. Animal experimentation, operative, post-operative and post-mortem findings have repeatedly confirmed the preceding statement. This dilatation is expressive of nature's effort to compensate for the loss of the gall-bladder. The stump of the cystic duct participates in this distension. That this permanent dilatation of the biliary ducts is of permanent harm to the individual has not been demonstrated. As a matter of fact, it presents no characteristic symptom-complex.

Though in some of the lower animals the gall-bladder is absent, though in man it is not a vital organ, as evidenced by the many patients in whom its removal has not been followed by any serious disturbances, we are firmly convinced that it is an important organ and a factor in the well-being of the individual. The body, by its power of adaptation, compensates for the loss of the gall-bladder. If the bile-ducts are patent, if the flow of bile into the duodenum is free and unimpeded, cholecystectomy does not permanently impair health, does not interfere with nutrition, does not shorten life, but it has been noticed that in 60 per cent. to 70 per cent. of cases in whom the gall-bladder has been removed, there is either a diminution or a suppression of the gastric secretion of HCl. In many of these cases, the HCl deficiency antedates the operation. I have patients whom I cholecystectomized over ten years ago, and who have since been in normal health.

After removal of the gall-bladder, the biliary pressure equalizes or overcomes the resistance of the sphincter of Oddi. Bile secretion is more or less continuous, and after a cholecystectomy, its excretion into the duodenum is at first also more or less continuous, and pure bile may appear in the stool this is abnormal).

\* \* \*

Next to the appendix vermiformis, the gall-bladder is the most frequent seat of abdominal morbidity. The intimate anatomical contacts and the close interrelationships (nervous, vascular, lymphatic) existing between the gall-bladder and biliary ducts and the contiguous abdominal organs determine in a large measure the incidence, progress and distribution of disease in this region, be the disease calculous, obstructive, inflammatory or neoplastic in nature.

Inflammatory processes (especially those of low virulence) of the gall-bladder may initiate, and, in fact, are frequently associated with gall-stone formation. Cholelithiasis is most always preceded by or associated with an infective inflammation of the gall-bladder. Bacteria (staphylococci, streptococci, typhoid, paratyphoid, colon bacilli, etc.) have been found in biliary calculi, have been found etiologically associated with cholecystitis. An infected gall-bladder is capable of receiving infection from and distributing infection to contiguous and remote organs. Chronic septic infection from the gall-bladder may cause infective arthritis, fibrositis (muscular rheumatism), to say nothing of the more remote, but, nevertheless, important noxious effects upon the heart and blood-vessels. The gall-bladder may be reinfected; it may reinfect itself. Thus is explained, in many cases, the recurrence and persistence of symptoms.

Infective microorganisms migrate to the gall-bladder through the common and cystic ducts, through lymphatic vessels, or through the blood stream (hepatic artery, cystic artery, portal system). Inflammation may spread to the gall-bladder by continuity of tissue: enteritis, duodenitis, choledochitis, cholecystitis; may spread to it by contiguity of tissue. Microbes gathered from the intestines by the portal system filter through the liver, and may be carried in the bile to the gall-bladder via the hepatic and cystic ducts. Infection gaining entrance from the intestines into the por-

tal circulation may reach the gall-bladder by means of the numerous lymphatic vessels that pass from the liver to the gall-bladder; may ascend from the duodenum through the lymphatics in the walls of the common duct. Thus is explained the frequent co-existence of cholecystitis with appendicitis, with typhoid fever, with colitis, and with suppurative hemorrhoids.

Enlargement of the lymph nodes along the common duct is good evidence of gall-bladder infection. "A seriously infected gall-bladder cannot exist without evidence of infection in the glands which drain it" (W. J. Mayo).

The frequent co-existence and association of cholecystitis and choledochitis with an hepatitis most marked in the immediate neighborhood of the gall-bladder, with acute and chronic pancreatitis is most always due to infection propagated by the lymphatic vessels. Many cases of pancreatitis follow cholelithiasis and cholecystitis. Cholecystitis may also be due to a direct extension of inflammation by way of the lymphatics from a liver already inflamed (Ewarts Graham). The not uncommon simultaneous occurrence of duodenal ulcers and cholecystitis furnishes further proof of lymphatic-borne infection. Some clinicians claim that 10 per cent. of duodenal ulcers are accompanied by cholecystitis. Pyaemia excepted, every infection is a lymphangitis.

Bile stasis is a potential predisposing factor to gall-bladder disease and to gall-stone formation. Stagnant, stringy, viscid, tarry bile is evidence of pathology. Stasis is a factor in appendicitis, in inflammations of the urinary bladder, and apparently plays an analogous etiological role in inflammations of the gall-bladder. Stasis is more common in women because of pregnancy, tight clothing, constipation, sedentary life, lack of fresh air and exercise. Impairment of the elasticity, contractility or motility of the gall-bladder, partial or complete occlusion or obstruction of the bile-ducts impede the free flow of bile, predispose to bile-stagnation, to bile concentration, to bile disintegration, increase the bile pressure, and invite bacterial infection. Even those who attribute gall-stone formation to hypercholesterinaemia do not deny the etiological importance of stasis and infection.

\* \* \*

Acute, subacute, chronic or recurrent inflammatory processes of the gall-bladder and bile-ducts



are either local or diffuse. Gall-bladder disease is often merely part of an infection involving other organs in close proximity. Here, as elsewhere, infective inflammation (primary and secondary) spreads by continuity or contiguity of tissue, is transmitted through vascular or lymphatic channels, and, gall-stone formation being excepted, resembles in inception, evolution, termination and sequelae infective inflammations occurring in other hollow viscera. The various pictures presented correspond to the different phases, to the different stages of inflammation. Each succeeding attack of cholecystitis causes additional degenerative changes in the already structurally altered gall-bladder. Grossly pathological gall-bladders are usually found in later life. Autopsy records, operative findings and clinical observations furnish abundant evidence of the very slow progression of most lesions of the biliary tract.

Gall-stones frequently accompany inflammatory (infective) processes of the gall-bladder and bile-ducts, are usually secondary to them, act like infected foreign bodies, and play an important etiological role in the lodgment, persistence and transference of infection. "Gall-stones are found in approximately 70 per cent. of all cases of gall-bladder disease" (Mayo). Though a by-product, they often initiate and more frequently keep up, complicate and aggravate gall-bladder disease. By their mechanical presence, they can cause tissue necrosis and perforation. Gall-stones vary in origin, shape, size, number, chemical composition and location. They may lodge and remain latent in the gall-bladder, may migrate down the cysticus and the common duct, and then escape into the intestinal canal, or may become impacted in a diverticulum, in the neck of the gall-bladder, or in any part of either the cystic or common duct. Impaction occurring after or unrelieved by a cholecystostomy produces a permanent mucous fistula. The persistence of an external mucous fistula may also be due to a stenosed or strictured cystic duct. A strictured or injured common duct may cause the persistence of an external biliary fistula. Calculous occlusion of the common duct causes temporary or permanent obstructive jaundice of gradual or sudden onset, leading, in some cases, to biliary cirrhosis. Stones in the hepatic ducts and in the liver are of unusual occurrence. Calculi lodging in the bile-ducts may cause, after a time,

at point of arrest, pressure ulceration, scarring, cicatricial contraction and stricture. If the calculus or calculi lodge or become impacted in the cystic duct, there may ensue an intermittent or continuous hydrops or mucocele of the gall-bladder, or an acute or chronic empyema. In the absence of impacted calculi, hydrops fellae and empyema are due to inflammatory sequelae causing a complete stricture, compression, closure or occlusion of the cystic duct. Complete obstruction of the cystic duct results in distension of the gall-bladder by clear mucus without bile. The cystic duct may be obstructed by the direct mechanical pressure of an enlarged lymphatic gland.

Infections of the gall-bladder involve, simultaneously or successively, one, two or more of its coats. Usually they are mural, interstitial, deep-seated, and when virulent or long-continued, invariably produce permanent histological changes. The integrity of the mucous membrane, submucosa and muscularis may be seriously impaired. Pericholecystitis, more or less extensive, is frequent. Any inflammation of the gall-bladder may be complicated by a localized or diffuse peritonitis. In chronic cholecystitis, the gall-bladder is thickened, sclerosed, shrunk and embedded in adhesions; in rare cases, it is the seat of calcareous degeneration. Long-standing calculous occlusion of the common duct leads to a contracted gall-bladder in about 85 per cent. of the cases (Courvoisier's Law).

Inflammation proceeding to the stage of supuration results either in an empyema, acute or chronic, a phlegmonous inflammation of the gall-bladder wall or a pericholecystic abscess. If an infected gall-bladder ruptures into the hepatic substance, a liver abscess results. Ulcerative inflammation, like gangrenous inflammation, is local or general, and involves the gall-bladder wall in part or in its entirety. If ulceration or gangrene extend through the whole thickness of the gall-bladder wall, perforation, acute or chronic, occurs either into the free peritoneal cavity, or, protective adhesions being present, into a neighboring hollow viscus. In the former case, a diffuse peritonitis results; in the latter, an internal biliary fistula ensues. "Perforation of the gall-bladder into the transverse colon or duodenum is not infrequent" (W. J. Mayo).

Pericholecystic adhesions are usually due to gall-bladder disease. They may bind the gall-bladder to the omentum, pylorus, duodenum, transverse colon, anterior abdominal wall, etc.; they may kink, twist, obstruct or compress the pylorus, the cystic or the common duct, and when they impede the evacuation of the stomach and the easy filling and emptying of the gall-bladder, there results pain, digestive and other disturbances.

Inflammations of the bile-ducts that heal by scar formation lead to stenoses, to strictures. Cicatricial changes in the gall-bladder produce distension, deformity, sacculation, hour-glass contraction, fibrosis or atrophy of the organ.

\* \* \*

The physiologic and pathologic relations existing between the stomach, duodenum, head of pancreas, liver and the gall-bladder and bile-ducts influence, obscure the symptomatology of disease of this region, and contribute to the uncertainties of early diagnosis. The clinician, despite the aid of a carefully elicited history and a judicious analysis of symptoms, is often unable to determine accurately previous to a laparotomy the extent and duration of gall-bladder involvement. As the clinical manifestations frequently do not correspond to the morbid anatomy present, and as many of the symptoms from which these patients suffer are reflex in origin, an exact diagnosis is often impossible previous to exposure of the seat of disease to inspection and palpation. Gall-bladder disease does not present a uniform clinical picture. The symptoms or signs are those of infection, inflammation, obstruction (calculous or non-calculous) and dysfunction, such as digestive disturbances, biliary dyspepsia, nausea, vomiting, belching, etc. "Fair, fat and forty with belching" (Deaver).

Adhesions resulting from acute or chronic pericholecystitis, pre- or post-operative in origin, may cause great distress, may impair the functional integrity and motility of the gall-bladder and surrounding organs; if omental, the pull on the greater curvature may be such as to render gastric peristalsis painful. Infective inflammation causes continuous, intermittent or paroxysmal pain, which may be localized (biliary ache, dull pain in right hypochondrium) or radiating (biliary colic)

Chills, fever, sweats, prostration, localized tenderness and rigidity over the gall-bladder region are always present in the acute stage. The different stages of inflammation: Catarrhal, suppurative, ulcerative, gangrenous, fibrotic—are accompanied by their respective symptoms. Obstruction to the biliary flow causes jaundice, cholemia with its accompanying disturbances, pruritus, etc. Some of the symptoms of chronic gall-bladder disease are due to adhesions; many result from coincident or associated disease of the duodenum, liver, pancreas, etc.; others are caused by the diseased gall-bladder.

To arrive at well-founded conclusions, it is important: (a) To take a careful history, and to make a complete physical examination. Keep in mind that gall-stones and gall-stone colic are not essential to the clinical picture of gall-bladder disease. Gall-stone formation is merely a frequent incident of gall-bladder infection; (b) to consider the roentgenological evidence. An affirmative roentgenological diagnosis is highly reliable. X-rays are able to visualize about 50 per cent. of cases of cholelithiasis. Fluoroscopic and x-ray observation of the stomach and intestines prove serviceable by revealing the existence of adhesions and other unsuspected abnormalities; (c) to interpret intelligently and skilfully the physical signs elicited and the evidence furnished by cholecystography. The oral and intravenous method of dye-injection are both valuable; (d) to analyze the laboratory findings: urine, blood, stomach contents, etc. They may furnish corroborative data. Non-surgical drainage of the bile tracts is a diagnostic procedure which has not yet come into general use. Its value is disputed by some.

\* \* \*

Cholecystostomy and cholecystectomy have each their advocates and respective indications. The operator should adopt the type of operation best suited to the case at hand. He must individualize. The indications are to shorten the patient's convalescence, to hasten his return to health, and to correct the existing pathology either by drainage or by more or less complete removal of foci of infection. Cases associated with much gross pathology tax the ingenuity of the surgeon. The degree of recovery secured is in direct proportion to the extent of pathology corrected.

The success or failure of an operation depends upon the degree of relief obtained, the results secured, and the absence of unpleasant post-operative sequelae. It is only after the abdomen has been opened and the anatomical changes present have been ascertained that the surgeon, best judge of his patient's resistance, can intelligently select the appropriate operative procedure.

Ideal surgery calls for the conservation of organs. There should be no needless mutilation. We disapprove of the prophylactic removal of the gall-bladder—the removal of an organ for conditions that may not occur. Cholecystectomy involving the sacrifice of an important organ is usually an operation not of election but of necessity. The small mimic gall-bladder formed at times after removal of the real viscus, is not a regenerated gall-bladder, but merely a distension of the stump of the former gall-bladder. It cannot perform the function of the parent organ. We believe that slight degrees of cholecystitis can resolve and the parts be restored to normal.

Surgical treatment should be instituted at the onset or in the early stages of gall-bladder disease, before the advent of such preventable complications as common duct obstruction (calculous or non-calculous), rupture of the gall-bladder into the free peritoneal cavity or into an adjacent viscus, various forms of pancreatitis, etc., before the pathology is so far advanced that restoration of normal function is doubtful. During the early period of disease, the operative difficulties are minimal, the mortality is practically negligible, and improvement and cure easier of attainment. In the young, the percentage of recoveries is high; the operative mortality, very low.

When disease of the biliary tract is complicated by surgical disease of other abdominal or pelvic viscera, should the patient's condition not warrant a prolonged operation, the surgeon will do all that is consistent with the patient's safety, and defer further operative work to a more propitious time.

In diseases of the gall-bladder and bile-ducts, cholecystostomy is the operation of election:

1. In the aged, the feeble, the obese, and in all patients whose general condition does not permit of more than the least amount of operating; in the presence of advanced cardio-vascular, advanced cardio-renal, advanced hepatic disease; in all cases in which a prolonged operation or an

extensive dissection might be productive of severe shock or might cause death; in all critical cases, as an emergency operation, when great debility or other conditions, such as deep jaundice, due to stone in the common duct, etc., necessitate haste and make cholecystectomy too dangerous or too prolonged an operation at that time. It is a good surgical principle to not subject patients to more than the minimal amount of trauma consistent with their general condition and the indications present. A very short incision immediately over the gall-bladder, and the insertion into it of a drainage tube or gauze, constitute almost a minor operation.

2. In cases associated with pregnancy.

3. In cases associated with pancreatic disease.

4. In all other patients in whom the existence of complications or disease of proximal organs make cholecystectomy too hazardous, too risky.

5. In deep jaundice, due to calculous or non-calculous occlusion of the common duct or to its compression by adhesions, by the head of the pancreas, etc. Decompression of the liver by drainage with the minimal interference is indicated in deep jaundice; owing to the decreased coagulability of the blood, there is great danger of fatal post-hemorrhage. In these patients, the question of hepatic function must be seriously considered.

6. If the gall-bladder be very intimately adherent to the surrounding organs. Adhesions may so firmly glue the gall-bladder to surrounding structures that its removal necessitates the dissection of inflamed tissues and leaves raw surfaces, potential portals of infection. Duodenal and other intestinal fistulae have resulted from the separation of dense adhesions binding the gall-bladder to the gut.

7. In cholelithiasis, for the removal of gall-stones from any or all of the following locations: Gall-bladder, cystic or common duct, provided that the gall-bladder presents a normal appearance, or is only slightly diseased, and the cystic duct neither ulcerated nor strictured. The chief cause of relapse in gall-stone disease is the leaving behind of undetected stones. In the absence of valid contraindications, all gall-stones call for operative removal. Early removal of biliary sand and gall-stones has been advised as a prophylactic measure against malignancy.

8. In the early stages of cholecystitis, calculous or non-calculous, when the gall-bladder is but

slightly altered and cystic duct is patulous, removal of stones and drainage may be followed by return of function and restoration of organ to normal structure. There are mild degrees of cholecystitis that do not produce thickening of the gall-bladder wall.

9. In acute pancreatitis complicating gall-bladder disease. The association of gall-stones and pancreatitis is variously given as between 50 per cent. and 65 per cent. Mayo reported that in 80 per cent. of the operations on the pancreas, there are lesions induced or accompanied by gall-stones.

10. In all cases, traumatic or pathologic, and in which there is imminent danger of post-operative stricture of the common duct, also in those in which, a stricture being present, there is no hope of re-establishment of the patency and function of the common duct. In the presence of these conditions, the necessity of anastomosing the gall-bladder to the gut may be immediate or may arise at some future time. After a cholecystectomy, no short-circuiting operation between the gall-bladder and the gut is feasible.

11. In the course of all laparotomies in which you have not encountered infection, and the patient's condition warrants it, examine the gall-bladder. Palpation may reveal the presence of gall-stones. As in these cases the calculi have not caused marked symptoms, and the gall-bladder wall usually presents a normal histological structure, cholecystostomy suffices.

12. In certain cases of cholangitis accompanied by icterus and enlargement of the liver and pancreas.

13. In certain cases of malignancy with obstructive jaundice due to carcinoma of the common duct or of the head of the pancreas. In these cases, if radium treatment be thought desirable, the gall-bladder can be used as an avenue for its application.

14. In all cases where temporary drainage of the gall-bladder and bile-ducts is indicated: (a) presence of infected foci in the liver; (b) to secure the expulsion of stones overlooked at time of operation. Drainage permits spontaneous discharge of small intrahepatic concretions as they pass downward to the extra-hepatic ducts.

15. In all cases where the mechanical difficulties incident to a cholecystectomy are great and make the operation extra hazardous.

Convalescence after a successfully performed cholecystectomy is shorter, attended with less discomfort, and less complicated than after cholecystostomy. The post-operative course is as uneventful as that of a salpingectomy for pyosalpinx. Following removal of the gall-bladder, recurrence of symptoms is uncommon and the percentage of cures is high; the danger of pericholecystic adhesions and mucous fistulae-formation is non-existent. One of the most valid objections to cholecystostomy is the frequency with which post-operative adhesions form after its performance. "In the Mayo Clinic, cholecystectomy is performed in more than 90 per cent. of cases, as against cholecystostomy in less than 10 per cent." (Mayo).

The disadvantages of cholecystectomy are: (a) it is difficult of execution; (b) it is not of universal application. The gall-bladder should never be removed unless one is certain that the common duct is patent; (c) it is attended with the danger of shock, hemorrhage, injuries to the common duct, to the duodenum, etc.; (d) it has a slightly higher operative mortality than cholecystostomy; (e) it removes a useful organ, the functions of which we do not definitely know.

Cholecystectomy is the indicated operation if the patient's general condition permits:

1. In all localized or diffuse ultra-acute inflammatory conditions, ulcerative, gangrenous, phlegmonous or membranous cholecystitis. In all cases of cholecystitis in which the gall-bladder is so altered that, judged by gross evidence, "it can not come back."

2. In acute cholecystitis, when the gall-bladder is very distended from blockage of the cystic duct.

3. In advanced chronic or repeated inflammations of the gall-bladder. When the organ is markedly thickened, contracted, atrophied, deformed, shrunken or adherent, and when it is evident that it cannot be restored to its normal condition, when it is evident that it is irretrievably lost, or that the disease is progressive in nature, as in fibrous or calcareous degeneration. In these cases, the elasticity of the gall-bladder wall is impaired or lost, and its glandular secreting apparatus partly or wholly destroyed.

4. In a "strawberry" gall-bladder, the gall-bladder mucosa being covered with tiny beads.

(Continued on page 96)



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## EDITORIALS

### THE DOCTOR LOOKS AT HOBBIES

Recently there has been published a volume by one of our own profession recounting the literary efforts of the medical profession. The book itself is an attractive and valuable addition to our publications, but, more than that, it represents the avocation of one of our most distinguished members and brings to mind the old saying that everyone should have a hobby. There is probably

nothing that tends more to keep one young, open-minded and mentally alert than a hobby. No group of professional men need the advantages accruing from a hobby more than the doctors. It doesn't matter nearly as much what the hobby is as it does that you have a hobby; let the hobby be the collection of postage stamps, etchings, antique furniture, or butterflies; or let the avocation be a study of early American history or anthropology or magic, or hunting, fishing or travel. To have such an intense interest in something outside of the routine work of the day that is wholesome,

that brings new contacts and widens the mental horizon is a real benefit to every physician. It gives us a plaything when our working days are over; it need not be an expensive hobby, and in many cases is often made an ultimate source of revenue. The single track mind wears out early, is narrow and tends to lead to a pessimistic outlook on life. It behooves us all to get a hobby, develop it and receive dividends from it in the form of health and happiness..

### POSTURE

To the physician who has the inspection of school children as one of his duties, the importance of posture is an ever present problem. The general relationship between nutrition and posture is also evident.

During the war the importance of posture was forced upon the medical corps, because the hospitalization of those showing the higher degrees of poor posture was a serious factor. Since that time more interest has been taken in determining the degrees of posture and the prevention of poor posture.

It is always dangerous to attempt to establish standards in anything so subject to individual characteristics as the human body. However, there must be some basis for comparison. The usual grouping is that of the four classes, A, B, C and D, with A as the proper posture and D the extreme poor posture and B and C the grades between. These grades are determined by silhouette-ographs compared with the definite standards.

The recent figures as reported by Dr. Alfred Worcester, Professor of Hygiene at Harvard College are significant. Of 834 students examined, only 35 were in the "A" group, 300 in the "B" group, 375 in the "C" group and 124 in the "D" group. This means that practically 60% were in the 2 lower grades.

It was reported that these figures were better than last year's, but certainly far from being as they should be. Here is undoubtedly a fertile field for study among school physicians, who have under their supervision a group that is amenable to prevention and is eager to co-operate in the improvement of their health.

### NEWS ITEM

It will be of interest and satisfaction to medical men of Rhode Island to know that Dr. Isaac Gerber, of Providence, has recently been appointed visiting radiologist to the Pondville Hospital, at Norfolk, Mass. This hospital, which will be opened by Gov. Fuller on June 21st, is under the direction of the Public Health Department of Massachusetts, and is part of the commonwealth's recently inaugurated campaign against cancer. The institution will have 90 beds all devoted to the treatment of cancer of every type. There will be complete equipment for operative, X-ray and radium service to all the patients.

### DISEASES OF GALL BLADDER

(Continued from page 94)

5. In hydrops fellae, due to blockage of the cystic duct, secondary to stricture or to impacted stone.
6. In empyema of the gall-bladder due to an impacted stone or strictured cystic duct.
7. For the cure of pathologic fistulae existing between the gall-bladder and a hollow viscus, if associated with disturbances calling for treatment.
8. For penetrating injuries, ruptures and perforations of the gall-bladder of either traumatic, calculous or inflammatory origin.
9. For mucus fistulae of the gall-bladder resulting from stricture or other obstruction of the cystic duct.
10. In chronic obstruction of the cystic duct, whether due to stone impaction, scar-tissue formation or torsion of the gall-bladder.
11. In irreparable injuries of the gall-bladder.
12. In volvulus of the gall-bladder.
13. In benign neoplasms of the gall-bladder.
14. In operable malignant neoplasms of the gall-bladder.

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